# Using Shift for Local Transfers and Tar Operations

For transfers on the same host within the NAS enclaveâ for example, between two directories on pfe*21*â the syntax for **shiftc** is similar to the **cp** command.

Note: If source and destination paths are not specified on the command line, any number of source/destination combinations will be read from the standard input, stdin (one combination per line).

The syntax for local Shift transfers is as follows:

```
shiftc [option]... source dest
shiftc [option]... source... directory
shiftc [option]...
```

For information about Shift options, including those used in the examples in this article, see Shift Command Options.

## Transferring Files Locally

The examples in this section show you how use the **shiftc** command to transfer files on the same NAS host.

Note: The first example includes output; subsequent examples show only the command line.

- Copy local *file1* into existing directory **/u/*username***:

  ```
  pfe21% shiftc file1 /u/username
  Shift id is 1
  Detaching process (use --status option to monitor progress)
  ```
- Copy *file1* from **/u/*username*** to **/nobackup/*username*/*dir1*** on pfe*21*:

  ```
  pfe21% shiftc /u/username/file1 /nobackup/username/dir1
  ```
- Recursively copy the directory **inputs** inside another directory, **/nobackup/*username*/*dir2***:

  ```
  % shiftc -r inputs /nobackup/username/dir2
  ```

  Complete the same operation with data verification turned off:

  ```
  % shiftc -r --no-verify inputs /nobackup/username/dir2
  ```

  TIP: Although using the **--no-verify** option can improve the speed of your transfer, it is not recommended because without data verification, the integrity of your data cannot be ensured.
- Copy local *file1* in the current directory to existing local directory **/u/*username*/*dir1***:

  ```
  pfe21% shiftc file1 /u/username/dir1
  ```
- Recursively copy local directory **/nobackup/*username*/*dir1*** to local directory **/nobackup/*username*/*dir2*** using 2 client hosts to perform the transfer:

  ```
  pfe21% shiftc -r --hosts=2 /nobackup/username/dir1 /nobackup/username/dir2
  ```
- Recursively copy local directory **nobackup/*username*/*dir1*** to local directory ***dir2***, but exclude files ending in **.log**:

  ```
  pfe21% shiftc -r --exclude='\.log$' nobackup/username/dir1 /dir2
  ```

## Creating and Extracting Tar Files Locally

You can use Shift to transfer a directory and write it into a tar file it in one step, resulting in a portable tar file that can be read by either **shiftc** or **tar**. In the same step, you can also create a table-of-contents (.toc) file that lists the files contained in the archive along with their sizes and attributes (recommended).

Because of their sequential nature, tar files cannot be efficiently updated in place. As a workaround, incremental tar files can be used, which are separate tar files that consist of files updated after the time the original or subsequent incremental updates were created.

## Creating Tar Files

The examples in this section show you how to create tar files on the same NAS host.

- Create a tar file (*dir1*.tar) of the directory **/nobackup/*username*/*dir1*** and put it in the current directory, along with a corresponding table of contents (*dir1*.tar.toc):

  ```
  pfe21% cd /nobackup/username
  pfe21% shiftc --create-tar --index-tar dir1 dir1.tar
  ```

  Note:? If the *dir1* directory is over 1 TB, it will be split into multiple tar files prefixed with *dir1*.
- The Pleiades nobackup filesystems are mounted on Lou. This makes it possible to create local tar files from your nobackup filesystem directly to your Lou home directory when you are logged into Lou (lfe*5-8*).

  For example, to transfer the *dir1* directory as a tar file from your nobackup filesystem to the *data_dir* directory in your Lou home directory:

  ```
  lfe5% cd /nobackupp8/username/data_dir
  lfe5% shiftc --create-tar --index-tar dir1 /u/username/data_dir/dir1.tar
  ```

  Note: In the above example, the first step is to change into the directory **/nobackupp8/*username*/*data_dir***, which is the parent directory of *dir1* (the directory you are transferring). This prevents the tar operation from creating extraneous prepended directories when the tar file is extracted.

## Creating Incremental Tar Files

The examples in this section show you how to create incremental tar files on the same NAS host.

- Create an incremental tar file (*dir1*-2020.tar) of all files modified on or after January 1st, 2020 in the /nobackup/*username/dir1* directory, and put it in the current directory, along with a corresponding table of contents (*dir1*-2020.tar.toc):

  ```
  pfe21% cd /nobackup/username
  pfe21% shiftc --create-tar --index-tar --newer="Jan 1 2020" dir1 dir1-2020.tar
  ```
- Create an incremental tar file (*dir1*-update.tar) of all files modified in the *dir1* directory of your nobackup directory after the original tar (*dir1*.tar) was successfully completed, to the *data_dir* directory in your Lou home directory:

  ```
  lfe5% cd /nobackupp/username/data_dir
  lfe5% shiftc --create-tar --index-tar --newer=`stat -c %Y /u/username/data_dir/dir1.tar` \
  ```

```
dir1 /u/username/data_dir/dir1-update.tar
```

Notes:

- The **shiftc** command line shown above is too long to be formatted as one line, so it is broken with a backslash (\).
- The version of **stat** currently deployed on the systems does not allow file creation time to be retrieved, so the above example might miss files that were modified or created while the original tar was being written.

## Extracting Tar Files

The examples in this section show you how to extract files from a tar file on the same host.

- Extract the tar file *dir1*.tar on Lou directly into your **/nobackup** directory:

```
lfe5% cd /nobackup/username/data_dir
lfe5% shiftc --extract-tar /u/username/data_dir/dir1.tar .
```

- If *dir1* was over 1 TB and therefore split into multiple tar files:

```
pfe21% shiftc --extract-tar /u/username/data_dir/dir1.*tar .
```

- Extract the files *1g.20* through *1g.29* from *dir1*.tar to the current directory:

```
pfe21% shiftc --extract-tar --include='1g\.2[0-9]' dir1.tar .
```

Note: As shown in this example, **shiftc** uses Perl-style regular expressions for some options.

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https://www.nas.nasa.gov/hecc/support/kb/entry/512/